

Conference Registration Management Application: CRMA

By

Christopher A. Duwel

Submitted to
the Faculty of the Information Engineering Technology Program
in Partial Fulfillment of the Requirements for
the Degree of Bachelor of Science
in Information Engineering Technology

University of Cincinnati
College of Applied Science

June 2004

Conference Registration Management Application: CRMA

by

Christopher A. Duwel

Submitted to
the Faculty of the Information Engineering Technology Program
in Partial Fulfillment of the Requirements
for
the Degree of Bachelor of Science
in Information Engineering Technology

© Copyright 2002 Christopher A. Duwel

The information in this document is proprietary and may not be reproduced or distributed
in whole or in part without the permission of the owner.

Christopher A. Duwel

Date

Prof. Robert Schlemmer, Faculty Advisor

Date

Prof. James Sullivan, Department Head

Date

Acknowledgements/Dedication

Special thanks to Christopher Kinard for giving me the idea for the project and providing help in various aspects of development including suggestions on format and pages needed as well as pictures to include. Also thanks to Joan Thamann, Communications Specialist at the Greater Cincinnati Convention and Visitors Bureau, for her help in providing me with statistics on the number of conferences and events over the past few years.

Table of Contents

Section	Page
Acknowledgements/Dedication	i
Table of Contents	ii
List of Figures	iv
Abstract	v
1. Statement of the problem	1
2. Description of the solution	1
2.1 User profile	2
2.2 Design protocols	3
3. Objectives of the project	7
4. Design and development	9
4.1 Timeline	10
4.1.1 Accomplishments of Senior Design I	10
4.1.2 Accomplishments of Senior Design II	10
4.1.3 Accomplishments of Senior Design III	10
4.2 Budget	11
5. Proof of design	12
5.1 User Interface	12
5.1.1 Home page, Title banner, Links	12
5.1.2 Login page	13
5.1.3 Create Account page	14
5.1.4 Search conferences: Search page	15
5.1.5 Search conferences: Details page	16
5.1.6 Search conferences: Register page, payment section	17
5.1.7 Setup conference: general information page	18
5.1.8 Setup conferences: date/time details page	19
5.1.9 Setup conferences: seminars page	20
5.1.10 Setup conferences: ad/booth page	21
5.1.11 Setup conferences: Payment page	22
5.1.12 Member Approval page	23
5.1.13 Help page	24
5.2 Relational Database Management System (RDBMS)	25
5.2.1 Tables	25
5.2.2 Constraints	26
5.2.3 Users	27

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

Section	Page
5.3 Testing	28
6. Conclusions and Recommendations	29
6.1 Conclusion	29
6.2 Recommendation	29
Appendix A. Research Information	31
Appendix B. Timeline for the creation of CRMA	33
Appendix C. Sample Code for CRMA	34
C.1 Code snippet for login page	34
C.2 Code snippet for create account page	34
C.3 Code snippet for the search page of the conference registration set	35
C.3.1 Page load	35
C.3.2 This set of code is a sample of the code that populates the datagrid	35
C.3.3 Julian date converter code	36
References	37

List of Figures

Figure 1. Flowchart of Conference Registration Management Application (CRMA)	4
Figure 2. CRMA developmental budget	11
Figure 3. Startup view of CRMA showing the title banner, links, and home page	12
Figure 4. CRMA login page	13
Figure 5. CRMA create account page	14
Figure 6. CRMA Conference Registration/Purchase Page 1: Search Page.	15
Figure 7. CRMA conference details page	16
Figure 8. CRMA register page payment section	17
Figure 9. CRMA conference setup page 1: general details	18
Figure 10. Second page in the setup conference sequence: the Details page	19
Figure 11. CRMA conference setup page 3: Seminars page	20
Figure 12. Conference Setup page 4: Ad/Booth page	21
Figure 13. Conference setup page 5: the payment page	22
Figure 14. CRMA member approval page	23
Figure 15. CRMA help page	24
Figure 16. CRMA database Entity Relational Diagram	25
Figure 17. CRMA database userid field unique constraint	26
Figure 18. CRMA database password field unique constraint	27
Figure 19. CRMA user and permissions	28
Figure 20. CRMA Timeline	33

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

Abstract

Conference Registration Management Application (CRMA) is a Web application where conference organizers of any size company, organization, or group can set up a Web site for people to register for the conference. It requires very little interaction from either the conference manager or the Web site administrator. Through my contact with various members of the conference/event community and my own research of available registration sites, I found that there were very few affordable Web sites available. It seemed that many opted to create their own static page and have the registrants mail the registration form and payment to them. CRMA offers the conference organizer a simple interface to set up web forms displaying general information, seminars, and Advertisement/Booth sales. Then it offers the registrant or advertiser an interface to register or purchase space.

Conference Registration Management Application: **CRMA**

1. Statement of the problem

According to the Conventions Bookings document (14, 2003) received from Joan Thamann, Communications Specialist at the Greater Cincinnati Convention and Visitors Bureau, there were between 150 and 200 conventions and events each year between 2001 and 2003. The attendance for these years ranged from 150,000 to 250,000 per year at the Cincinnati Convention center alone. There are conferences and events to cover almost any subject such as gardening, antiques, and technical, as well as others. For example, conferences are held every year showcasing the new technology in the computer field, or new medical technologies. If one multiplies the above numbers by the number of cities around the world that host conventions and events, the number of people registering for an event over the Internet can be enormous. Allowing attendees, advertisers, and exhibitors to register or buy space over the Internet could dramatically cut down on the amount of paperwork needed for this purpose. There is a need for exhibitors and advertisers to purchase space and for attendees to register for these events.

2. Description of the solution

Since the number of people using the Internet grows rapidly every year, I see a great opportunity to assist in this venture by creating an application for people to handle these tasks over the Internet. I accomplished this task using an Internet compatible programming language (ASP.NET) as a front-end and a database (SQL Server 2000) as a backend. The ASP.NET code will drive the creation and management of the database.

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

This application can appeal to event planners in nearly any field due to features that it will provide.

- It will be general and dynamic enough to allow the conference or event information to change according to the answers it receives to the questions posted during set up.
- Since the planner does not actually have to purchase and install any software, the cost will be reduced. This may appeal to smaller or non-profit companies and organizations.
- It can provide an easy-to-use interface that would not require expensive training.

2.1 User profile

This application serves four types of users who would be connected to a conference or an event. They are the administrator of the application, the manager (person setting up the conference), the advertiser/exhibitor, and the attendee. To use this application, all three types of users would need to be able to use an operating system (such as Windows) and an Internet browser (such as Internet Explorer). However, they may be at the novice, intermediate, or advanced level of computer and Internet usage. Therefore, I am creating this application with an interface which will be simple enough for the novice to use and yet not too simple for the advanced user. The manager is the person who would create a conference using the interface. The manager would want to be able to get reports on the progress of the registration and advertisement/booth sales for the conference. The registrant would want details about names, dates, times, location, seminars, and cost of the conference. The advertiser and exhibitor would want the same details as the registrant, as well as the availability and cost of the advertisement blocks and booth space.

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

2.2 Design protocols

For the development of this application, the decision was made to use ASP.NET/Visual Basic.NET for the coding paired with SQL Server 2000 as the backend database and Paint Shop Pro 7 for the creation of the logo, title, and welcome image. These applications were chosen because of my familiarity with them and I felt that they would provide a stable base and backend for the application which, if deployed, has the potential to be used by a large number of people.

The title, in its own file, has two image controls, one for the application logo and the other for the title. The images were created using Paint Shop Pro 7, and have a white background with a rainbow of colors for the fore color. The title uses a font of Papyrus. The logo uses a font of Times New Roman.

The links to the other pages, also in their own file, are set in the default font with a size of medium. The labels displaying the information for the application are set at a default font type with a medium size and bold weight. The fonts for the text box labels are set at an Arial font type, medium size, and bold weight. See Figure 1. on the next page for the flowchart of the application.

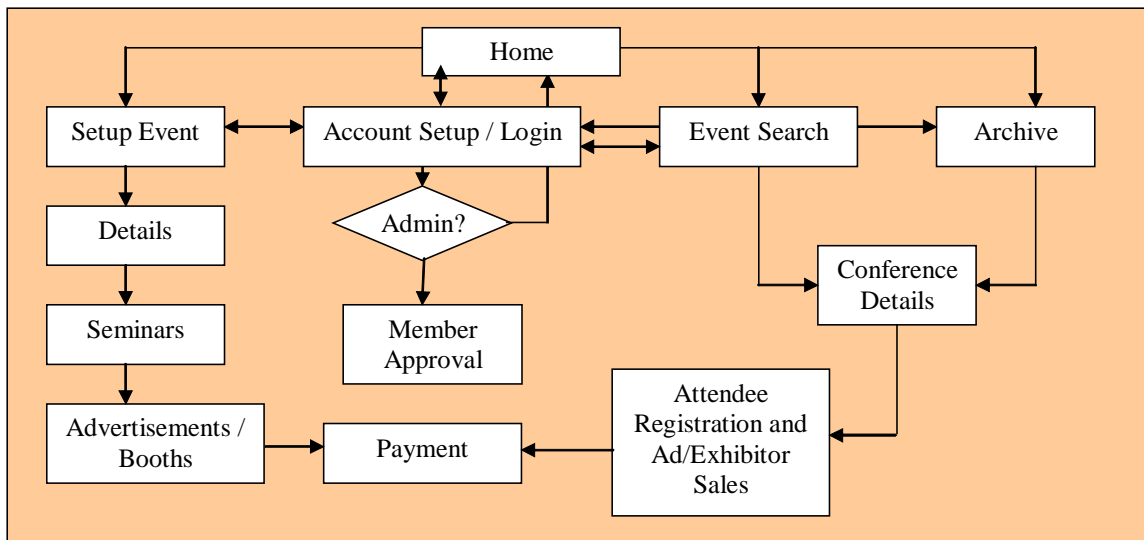


Figure 1. Flowchart of Conference Registration Management Application (CRMA)

The Home page has a simple interface offering to the user information explaining what the web site is for. It also has an image of a pre-registration desk at a conference. The site uses a font of Arial and a font size of medium.

The Login page is a simple interface allowing the user to login. Once logged in, the user is sent back to the page that he/she last viewed. This page uses client-side validation to make sure that the user enters both a userid and password before sending a request to the server.

The Create Account page asks the user for his/her basic information: Name, company (if any), address, and phone number. Then it asks the user to choose a userid and password. The application will check the database to see if the user is already a member and if so, request that the user log in. If the user is not, it will verify that the

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

chosen userid and password are not currently in use. If either is, it will display an error message and request the user to choose another. If not, it adds the user's data to the database, logs the user in, and sends the user back to the last page viewed. It also has the necessary client-side field validators to verify that the required fields are filled in and the password (entered twice) matches.

The Member Approval page is only available when a user logs in as the administrator. It provides the administrator with a list of all members and their type of membership SetupConf, Pending, or Member using a datagrid. With this interface, the administrator can change the member's status.

The Help page provides a user the information needed to either set up a conference or to register for one. It uses the same formatting as the other pages.

The next set of pages, Conference setup, is a sequence of five pages starting with the Setup page which collects the information about the conference including the userid, the conference name, the name of the company hosting the conference, the beginning and ending dates of the conference, the street address, city, state, and zip code of the conference, and the price to attend the whole conference. The next page, the Details page, collects the beginning and ending times of each day of the conference. This page allows the user to enter this information for each date, pressing a button in between each date. When done, the user simply clicks 'Next' to continue to the next page. The third page, the Seminars page, allows the user to add seminars to the conference one at a time with an 'Add Another' button and a 'Next' button. The Seminars page collects the name, date, times, price and description for the seminars added. When finished, the user is sent

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

to the Advertisement/Booth page where the user may enter data for the availability of advertisement blocks and/or Booth space at the conference. This page, like the two previous pages, allows the user to add multiple advertisement or booth information before continuing to the payment section. On this page, the user chooses either Advertisement or Booth and enters the date available, size of the space, price, and quantity available. The final page, the Payments page will collect the Name of the user, the Name on the credit card, and the credit card number.

The next set of pages provides the user with an interface to search available conferences, to view the details about the conference, and then to register for the conference or purchase advertisements or booths. The first page, the Conferences page, has a datagrid to display the conferences from the database. These conferences are only listed from the current date forward. The older conferences are available in the Archive pages. There is a search text box, radio buttons and a 'go' button to allow the user to search the database for a particular conference, date, city, state, or price. When the conferences are displayed, the conference names are displayed as links. If the user is the administrator, there is also a column to delete the conference. When the user clicks on a link, the next page is presented. This page displays the details of the conference including dates, times, seminars, and advertisement/booth availability. The dates of the conference, seminar names, and sizes available for both advertisements and booths are displayed as links. When a link is clicked, the user is sent to another page. This page requests the user's UserID and password. Once the UserID and password are verified, the application will display the Payments panel and collect the information described for payment under

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

the Conference Setup section. Once completed, the application will record the Conference ID number and the UserID. Then, if the user is registering for a day of the conference, it records the date; if registering for a seminar, it records the seminar name and registers the user for that day of the conference; and if buying advertisement or booth space, it records the type (Ad or Booth) and size. When the user chooses an advertisement or booth, the application also updates the availability number of the chosen advertisement/booth.

The last set of pages, the Archive set, are as described in the section above for the Conference Search, except that the conferences available to view are those with ending dates older than the current date, and that the user may only view the details of the conference.

3. Objectives of the project

- Web-accessed Graphical User Interface (GUI)
 - Home Page – Provides the user with information about CRMA and displays a picture of a pre-registration booth.
 - Login Page – The Login page allows the user to log in.
 - Create Account Page – This page allows the user to create an account to be able to log in to CRMA.
 - Member Approval Page – This page gives the administrator an interface to change the status of a member.
 - Help page – This page gives the user information on how to set up a conference and how to search conferences and register for one or purchase advertisement/booth space.
 - The page sequence to set up a conference involves five pages: general information (Setup), date/time (Details), Seminars, and Advertisements and Booths (AdsBooths), Payment page.

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

- Setup Page – This page is the first page that the user sees and collects the general information about the conference. Only if the user has a status of SetupConf can he/she setup a conference.
- Details Page – The details page accepts from the user the individual dates of the conference, allowing the user to set different times and prices for each day.
- Seminars Page – The Seminars page collects the information about the seminars for the conference.
- AdsBooths Page – The AdsBooths page gives the user an interface to enter multiple sizes and prices for both advertising and booth slots.
- Payment Page – The Payment page requests from the user: the user's name, the name on the credit card, and the credit card number.
- The sequence of pages to search the stored conferences includes three pages: the Search (conferences), details (ConfDetails), and account verification/payment (Register) pages. This sequence of pages will be used for both the current conferences and the Archive with a few variations.
 - Search Page (both) – This page will display the list of conferences in a table format with the name of the conference as a link.
 - ConfDetails Page (both) – The ConfDetails page displays the information for the chosen conference.
 - Register Page (current only) – The Register page verifies that the user is logged in, requests payment, stores data, and notifies the user of completion.
- Relational Database Management System (RDBMS)
 - Tables
 - Members – This table holds all the information received from the user during the creation of an account for UserID/password. This includes: Last name, First name, Company, Address, second Address, City, State, Zip code, Phone number, UserID, Password, and Type of membership. It uses MemID as the primary key.
 - Conferences – This table holds the information from the first page in the Setup Conference sequence. This includes: UserID, Conference name, Company name, Beginning and Ending dates, Location, City, State, Zip

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

code, and Price. It uses ConfID as the primary key and is related to the Members tables through the UserID.

- ConfDateTime – This table holds the individual dates, times, and prices for the conference and uses TimeID as its primary key and is related to the Conferences table through the inclusion of the ConfID.
 - ConfSeminars – This table holds the information for the seminars being offered at the conference. It records the ConfID, Seminar name, Seminar Date, Beginning and Ending Times, and a Description of the seminar. It uses SeminarID as the primary key and is related to the Conferences table through the ConfID.
 - ConfAdBooth – This table holds the information about the advertisement and booth availability for the conference. It records the ConfID, Type (Ad or Booth), Date of availability, Size of advertisement or booth space, and number available. It uses the AdBoothID as a primary key and is related to the conference table through the ConfID.
 - Registration – This table holds the information about the registration for the conference and seminars, as well as the information about purchase of advertisement or booth space. It includes the ConfID, MemID, Date of the conference (when he/she registers for a particular day), the Seminar name (when the user registers for one), and the Date, Type, and Size of advertisement or booth when purchased. This table has a primary key of RegisterID, and is related to the Conferences and Members tables through the ConfID and MemID, respectively.
- Constraints
 - Unique key constraint on the UserID column of the Members table.
 - Unique key constraint on the Password column of the Members table.
 - Users – UserID and password for the application with only SELECT, INSERT, and UPDATE permissions.

4. Design and development

This section lays out the details for the design and development of the application. The details include the timeline, budget, and software/hardware needs.

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

4.1 Timeline

The creation of this application involved many learning opportunities at each phase of research, development, and testing. The timeline can be viewed in Appendix A.

4.1.1 Accomplishments of Senior Design I.

- Analyzed current Conference Registration – both websites created by the presenting organization and competing programs/web applications.
- Researched current conference/event statistics.
- Surveyed people from conference/event community on needs for such a web site.
- Developed the layout and a budget for the project.
- Wrote and presented the proposal.

While researching the current options available to people for conference/event registration, I got a good idea on what a good application has and what the current options are missing. This gave me good insight on how to proceed with my application.

4.1.2 Accomplishments of Senior Design II.

- Developed the database using SQL Server 2000.
- Developed the user interface.
- Wrote and presented the Design Freeze.

4.1.3 Accomplishments of Senior Design III.

- Added additional components to make the site more user friendly.
- Placed application on Web Server and tested using several acquaintances from the Conference/Event community.
- Wrote Proof of Design, collected documentation for final documentation, and made final presentation for project.

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

4.2 Budget

The budget for the development of this application is shown in Figure 2. on the next page. This budget, showing both software and hardware, is the real world cost and what it would cost if I plan on compiling the application for sale or deployment; however, through the use of academic licenses, and the fact that I already have the necessary hardware, my actual cost was nothing.

Software	Cost
Visual Studio .NET Professional Edition	\$219.99 ³
SQL Server 2000 Developer Edition: 1 user License	\$44.99 ³
IIS	Free with Windows Operating System
Internet Explorer	Free ⁷
Paint Shop Pro 7	21.95 ³
Hardware	
Developmental System: P3 450MHz, 256MB RAM, 10GB HD, CD-ROM, Monitor, Mouse & Keyboard w/ Windows 2000 Professional or higher	\$1,263.00 ⁵
Testing System: Web Server with Server OS installed.	
Total:	\$1,549.93

Figure 2. CRMA developmental budget

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

5. Proof of design

5.1 User Interface

5.1.1 Home page, Title banner, Links

This Web site/application uses a frame setup with a banner frame at the top showing the title and logo, a links frame showing all the links to the various pages and a welcome image, and a main frame which shows the various pages which the user will use or navigate through. Below, in Figure 3., is a picture of the Web site when it first loads showing the title banner, links, and the home page.



Figure 3. Startup view of CRMA showing the title banner, links, and home page

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

5.1.2 Login page

The Login page is a standard page one might see at any site where a login is required. It asks for the userid and password and offers a submit button. A screen shot of the page is shown in Figure 4. below.

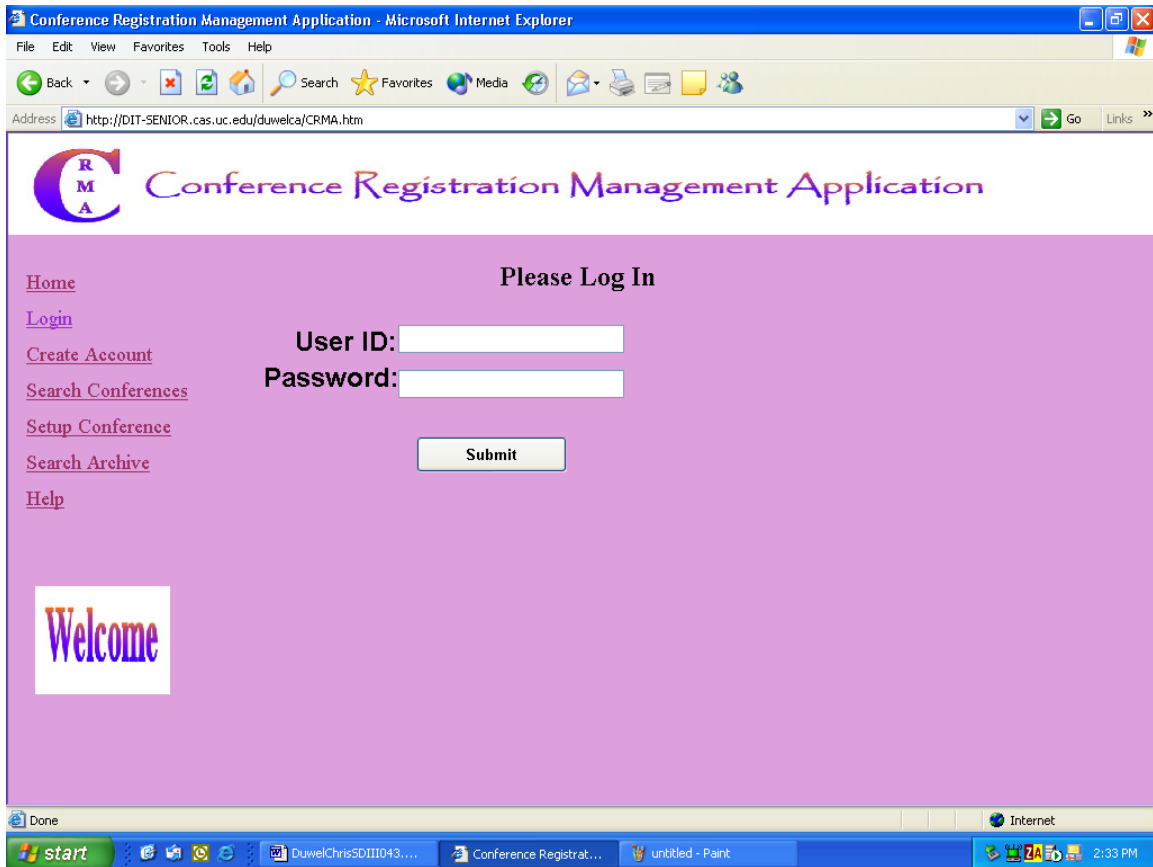


Figure 4. CRMA login page

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

5.1.3 Create Account page

The Create Account page is again a standard user account setup page. It asks the user for the standard user information: name, company, address, phone number, and for the user to choose a userid and password. It also gives the user a checkbox for the user to request permission to set up conferences. For a screen shot of the Create Account, please view Figure 5. on the next page.

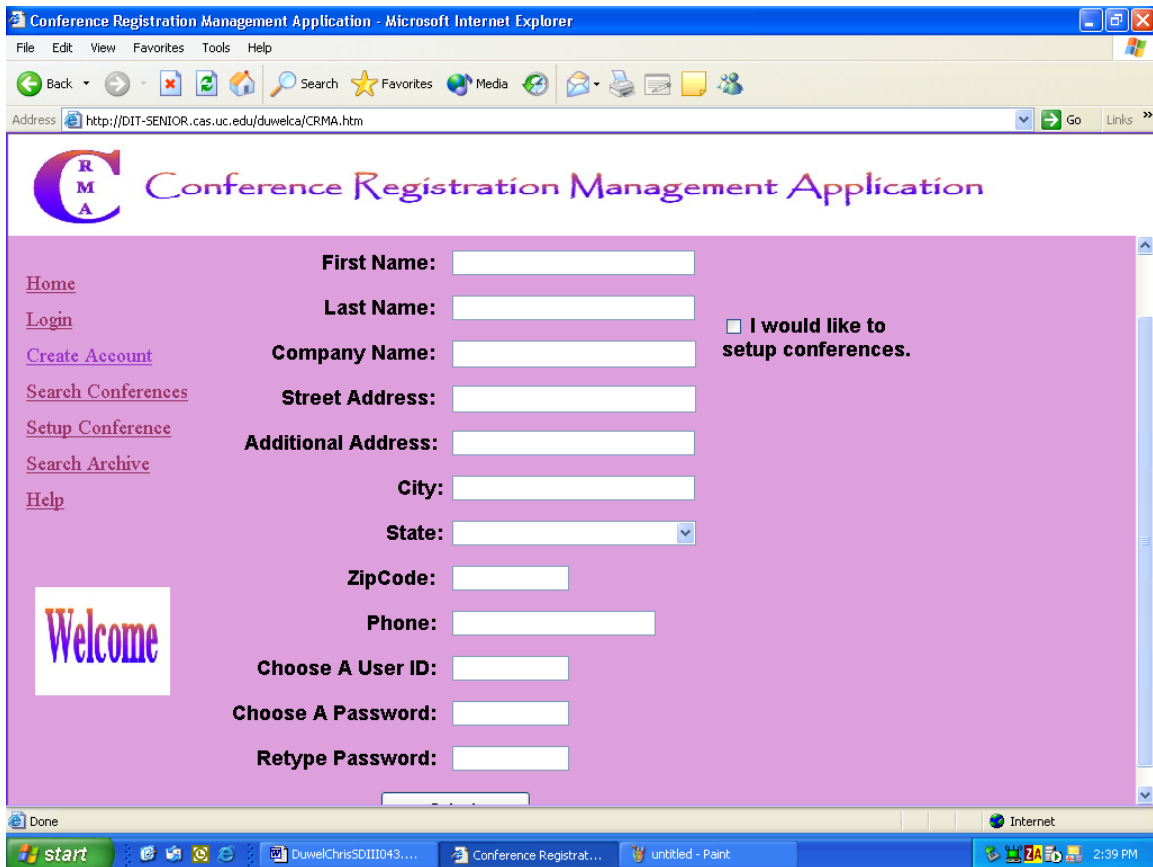


Figure 5. CRMA create account page

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

5.1.4 Search conferences: Search page

The Search Conferences and Search Archive set of pages use the same sequence of pages: Conferences, Details and Registration. The Conferences page, Figure 6. below, provides a searchable table of the conferences; however, clicking the Search Conferences link shows the current conferences, (beginning or ending dates from the current date forward) and the Search Archive link shows conferences older than the current date.

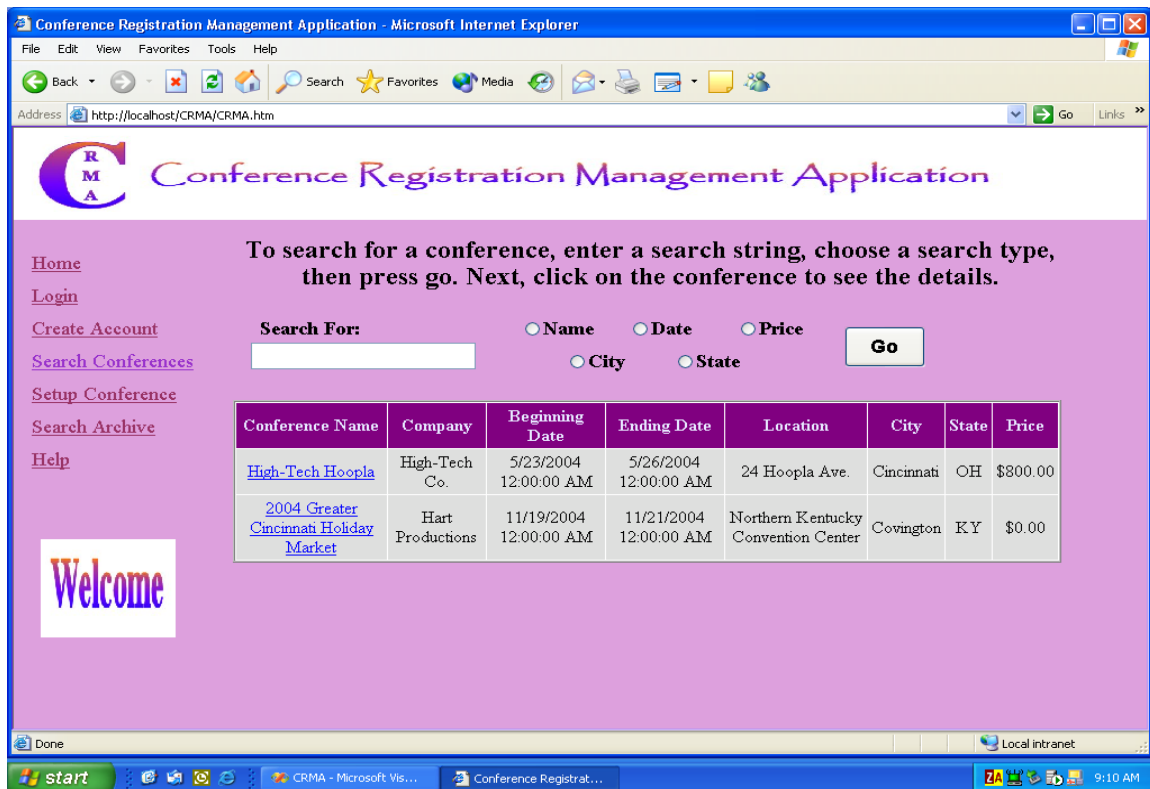


Figure 6. CRMA Conference Registration/Purchase Page 1: Search Page

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

5.1.5 Search conferences: Details page

The next page used by both links is the Details page, Figure 7. below, which gives the details on the conference. The difference is that for the current conferences, the user is allowed to register for the conference, a seminar, or purchase advertisement and booth space. For the Archive link, the user is only able to view this information but not register or purchase anything.

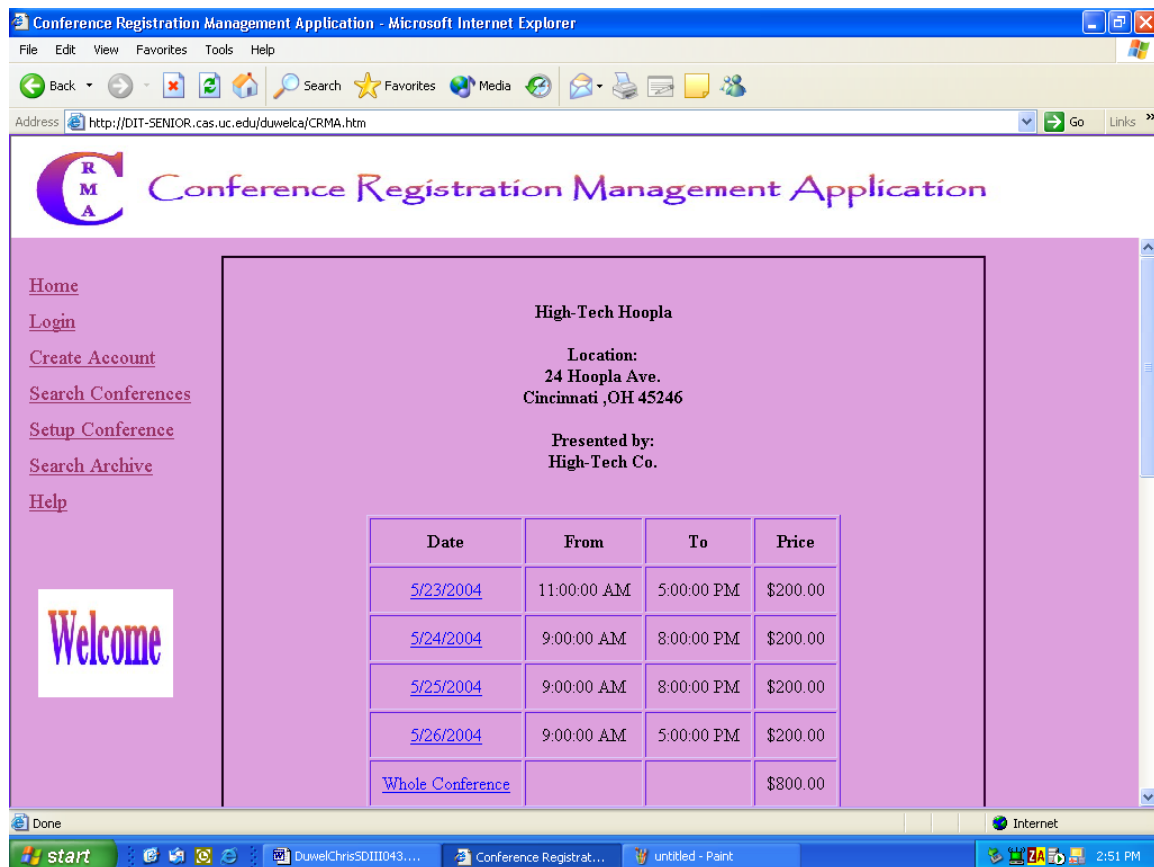


Figure 7. CRMA conference details page

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

5.1.6 Search conferences: Register page, payment section

The last page, the Register page, is only available for the current conferences. This page asks the user to provide their userid and password using the same type of page as the Login page; then, once verified, the user is asked for payment information including name, name on credit card, and credit card number (Figure 8. below). Once the

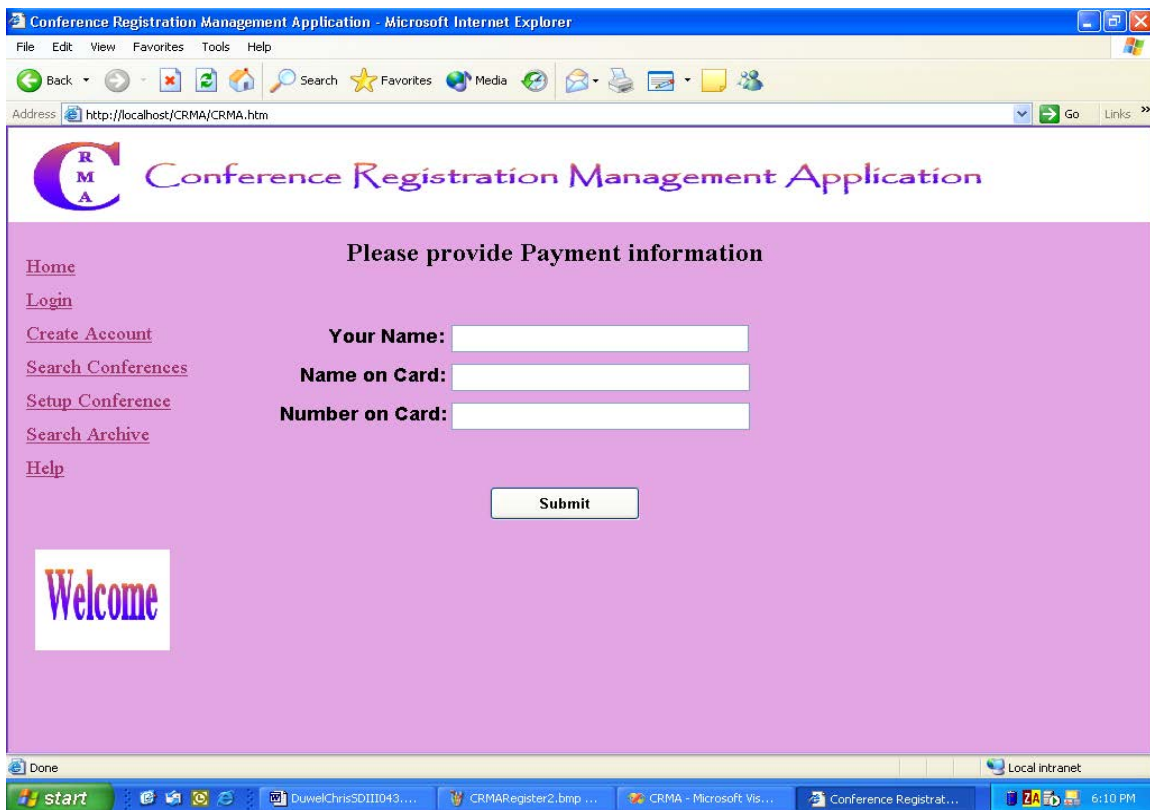


Figure 8. CRMA register page payment section

application verifies that something was entered into the text boxes, it records the registration or purchase in the database and sends the user back to the details page. Since I am not creating this project as a deployed application or selling it as yet, this page is not

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

secure and I do nothing with this information; however, if I deploy or sell the application, I will obtain an account with a secure company such as VeriSign and the information transfer would use an encryption script.

5.1.7 Setup conference: general information page.

To set up a conference, the user would again work his/her way through a series of pages. The first page in this sequence is the Setup page, Figure 9. below, where the user enters the General information. This page collects the userid, conference name, company name, beginning and ending dates, location, city, state, zip code, and price for the whole conference.

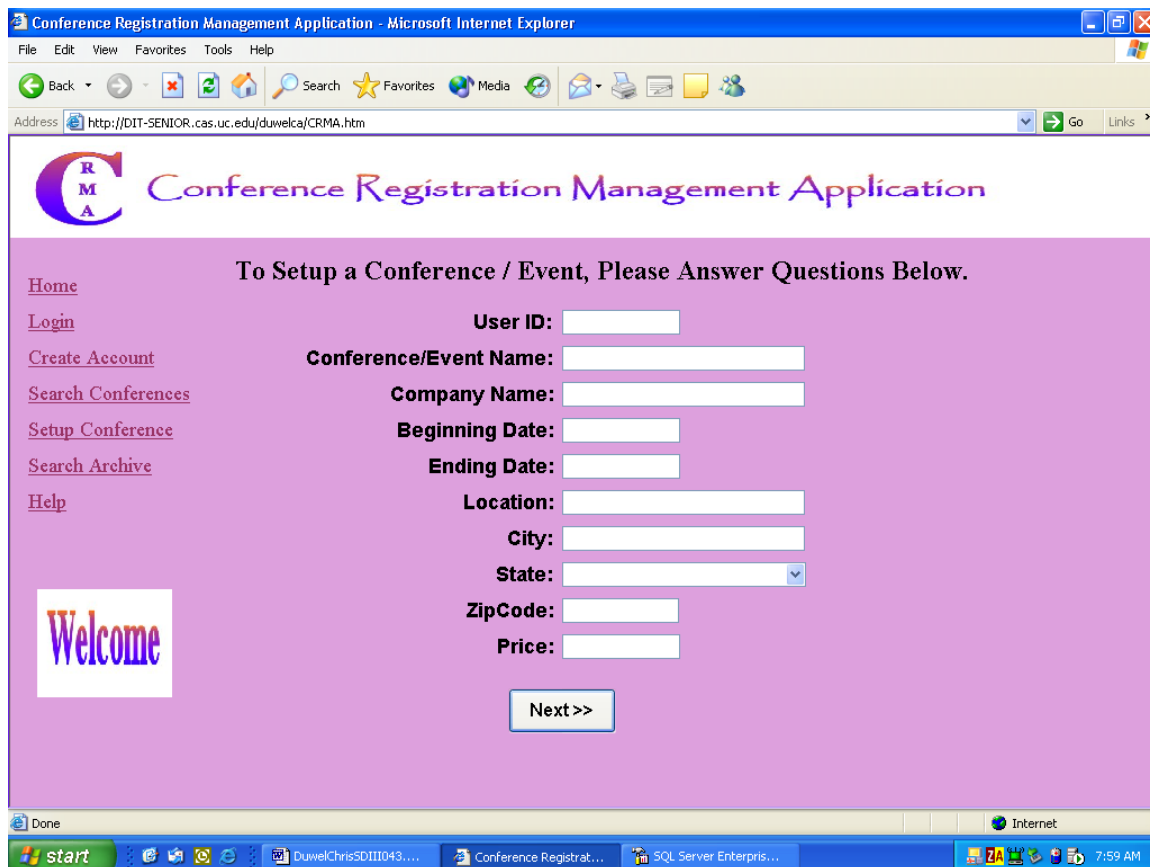


Figure 9. CRMA conference setup page 1: general details

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

5.1.8 Setup conferences: date/time details page

The second page, the Details page (Figure 10.), requests from the user the individual dates of the conference along with the beginning and ending times for the day and the price. The user presses either the 'Add Another' button to add additional dates or the 'Next' button to continue to the next page.

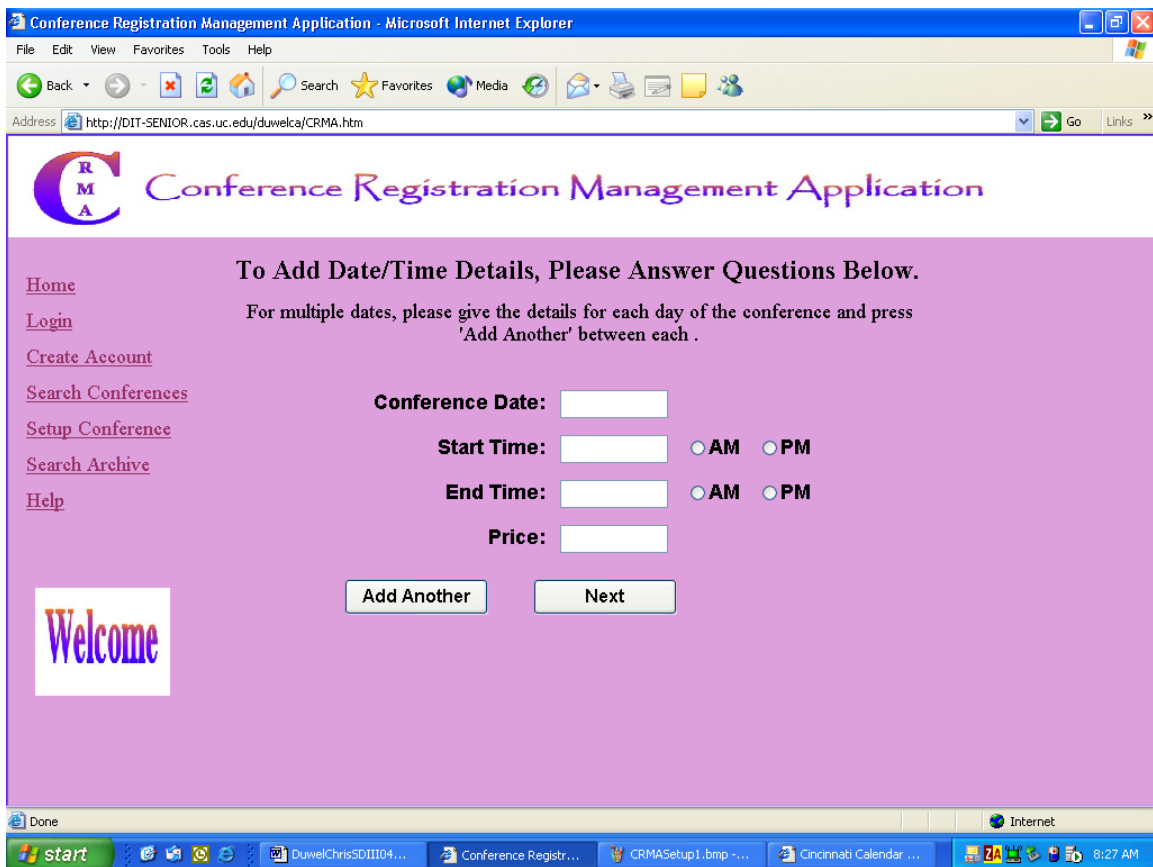


Figure 10. Second page in the setup conference sequence: the Details page

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

5.1.9 Setup conferences: seminars page

The third page is the Seminar page (Figure 11. below) where the user can enter the name, date, times and description of individual workshops or seminars available at the conference. This page, like the last one, gives the user the choice to add additional seminars or to continue to the next page. It is also not required to even enter a seminar.

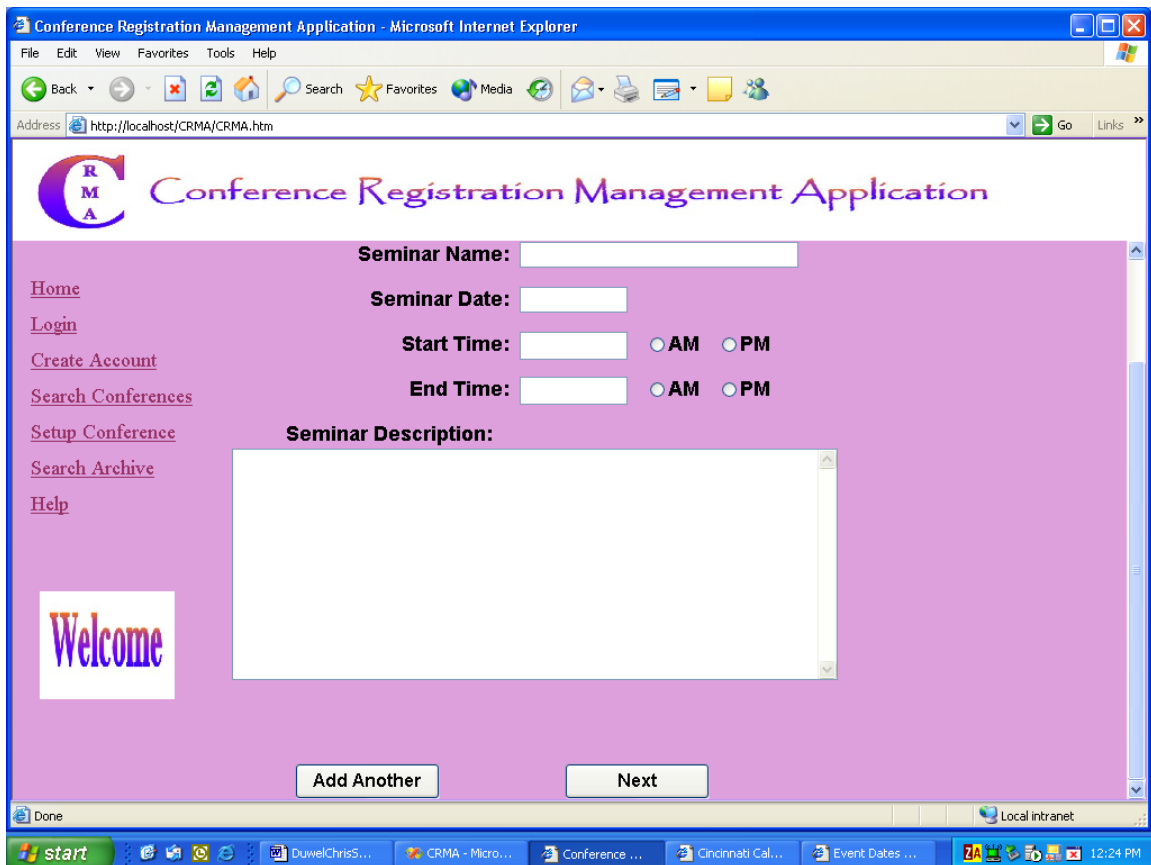


Figure 11. CRMA conference setup page 3: Seminars page

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

5.1.10 Setup conferences: ad/booth page

The next page in the sequence is the Advertisement/Booth Space page (Figure 12. below). This page allows the user to add information about the availability of advertisement blocks or booth space at the conference. The user would provide the size, date, price and number available. Again, it is not required to enter advertisement or booth information.

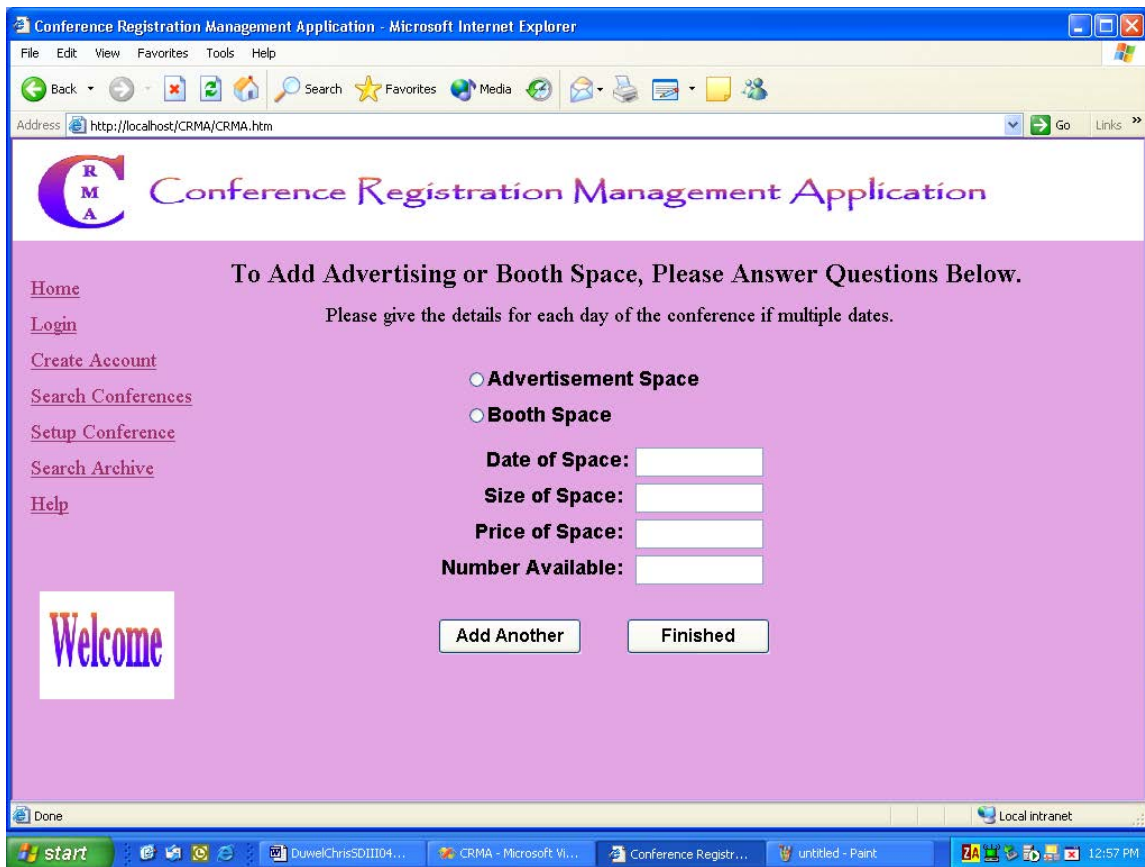


Figure 12. Conference setup page 4: Ad/Booth page

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

5.1.11 Setup conferences: Payment page

The final page in the sequence is the Payment page (Figure 13. below). This page is set up the same as the payment section of the Register page; however, it has a cancel button which if pressed will remove the conference from the database. I say remove because to save on coding, the conference details for each page is stored as the user goes to the next. If the user clicks on submit, a 'Y' is added to the table in the database to show that he/she paid. Again, this page does not use any security or encryption, but if I deploy or sell the application, I will make it secure and employ encryption technology.

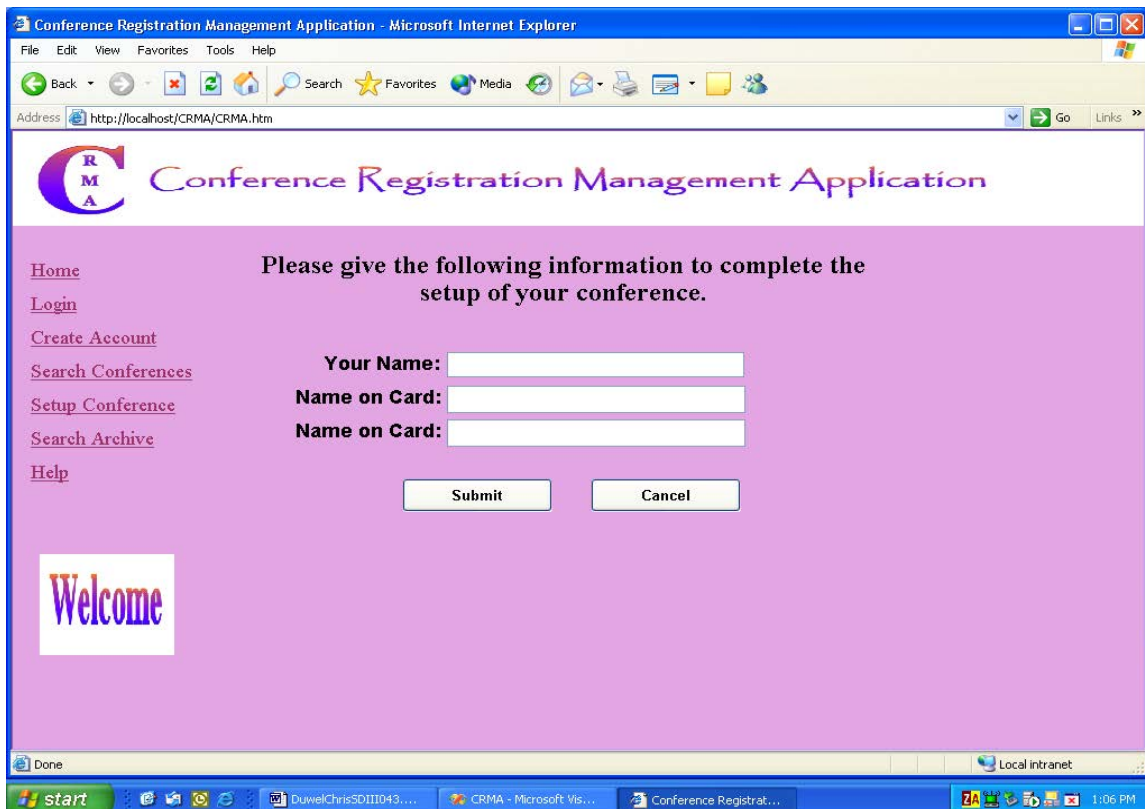


Figure 13. Conference setup page 5: the payment page

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

5.1.12 Member Approval page

This page (Figure 14. below) is only visible to the administrator who is sent to it upon logging in. This page gives the administrator an interface to update the status of a member requesting the ability to set up conferences by setting the type to 'SetupConf'. The administrator can also demote a member by giving him/her the type of 'Member'. The page shows a datagrid of the user's name, company name, phone number, and type. The administrator may only change the type, the other information is there only as contact information or identification.

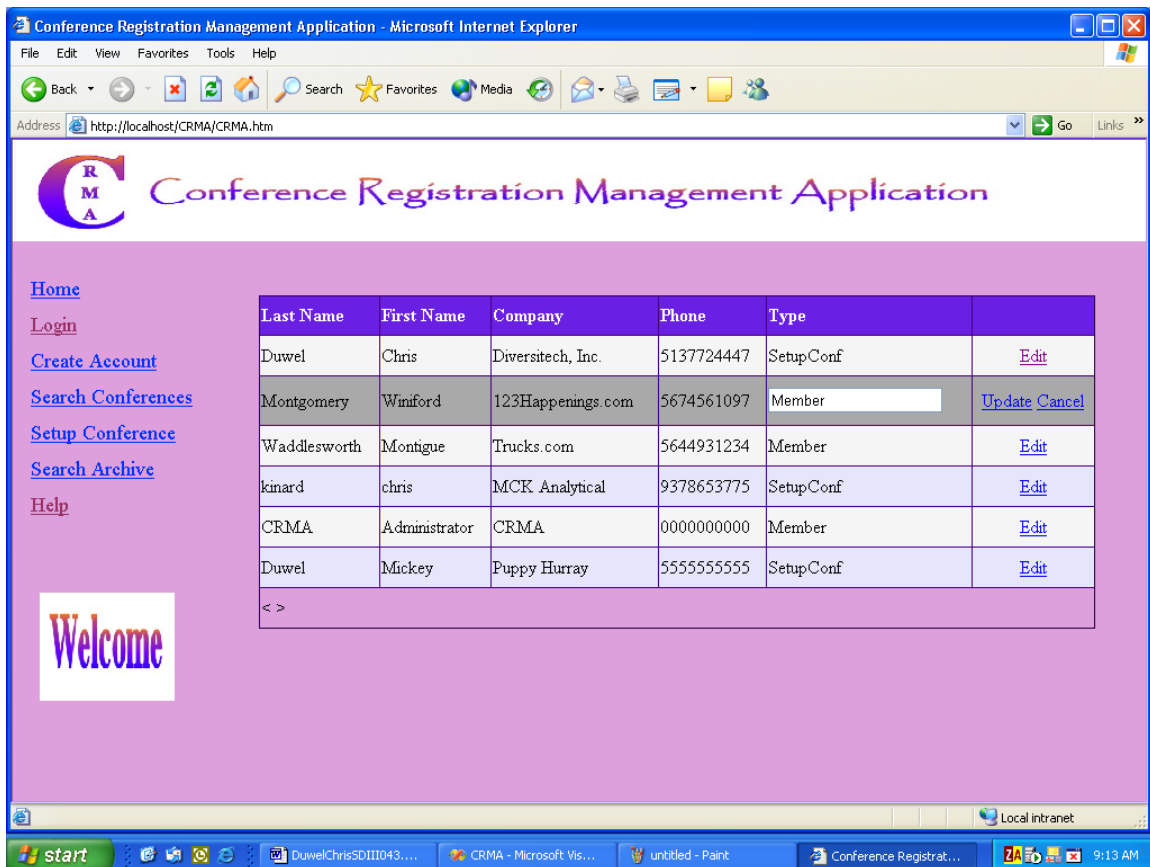


Figure 14. CRMA member approval page

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

5.1.13 Help page

The help page (Figure 15. below) is a simple HTML page that gives the user information on how to search and register for conferences and purchase ad/booth space or to set up a conference. It uses basic HTML labels to display the information.

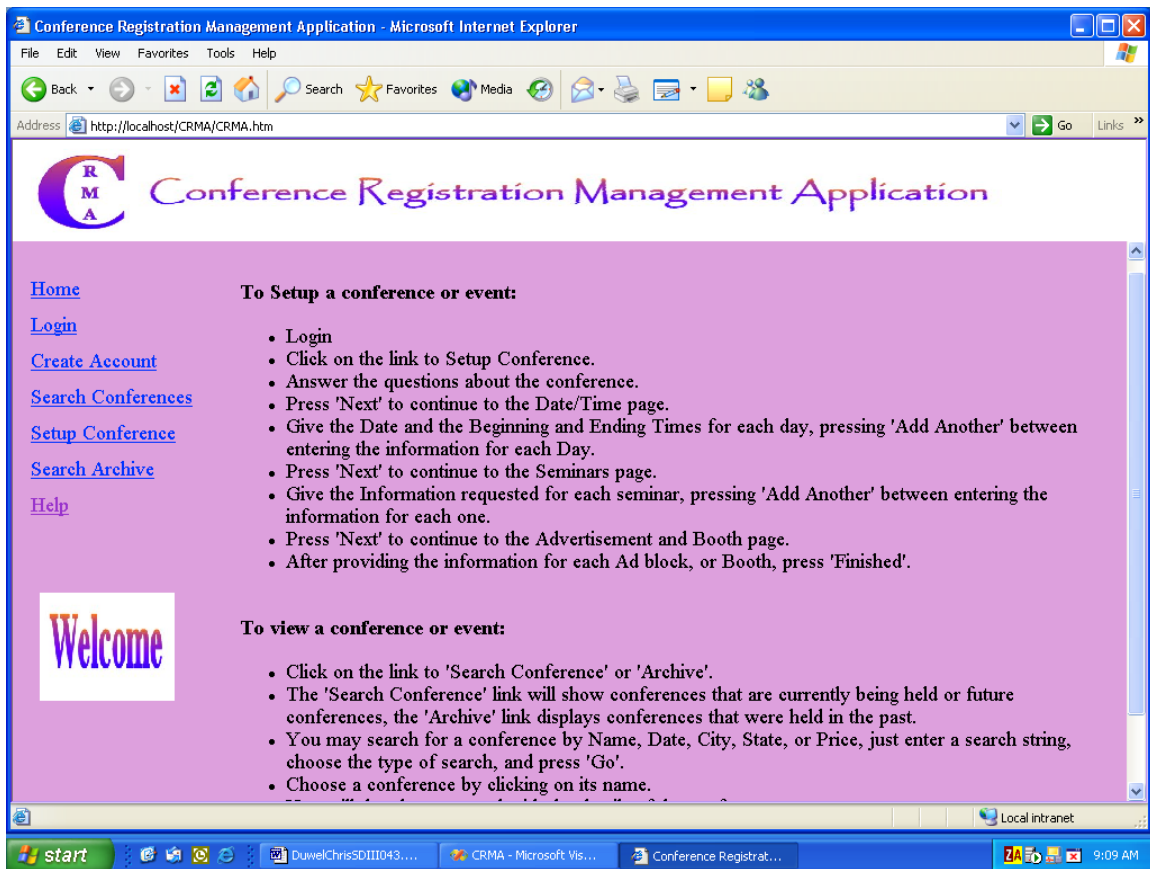


Figure 15. CRMA help page

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

5.2 Relational Database Management System (RDBMS)

The backend database for CRMA was created using SQL Server 2000 Developers Edition. This version was chosen because it works well while developing the application and upgrades to Enterprise Edition if needed.

5.2.1 Tables

The following figure (Figure 16.) shows the design of the database tables including fields, primary keys, and relationships to the other tables.

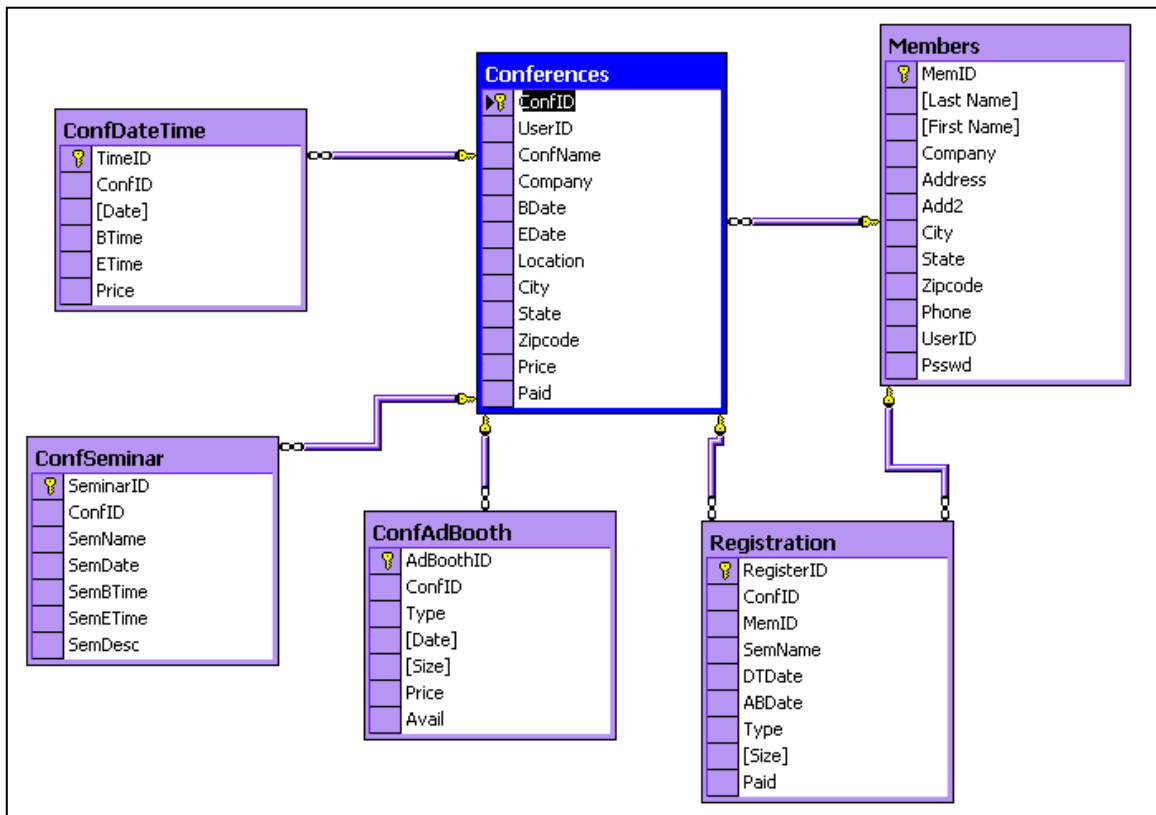


Figure 16. CRMA database Entity Relational Diagram

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

5.2.2 Constraints

To guard against members registering and using a userid and password that was used by another member, I instituted unique field constraints on the Userid (Figure 17.) and Password (Figure 18. on the following page) fields. These constraints are in addition to the primary key constraints required per table by SQL Server 2000.

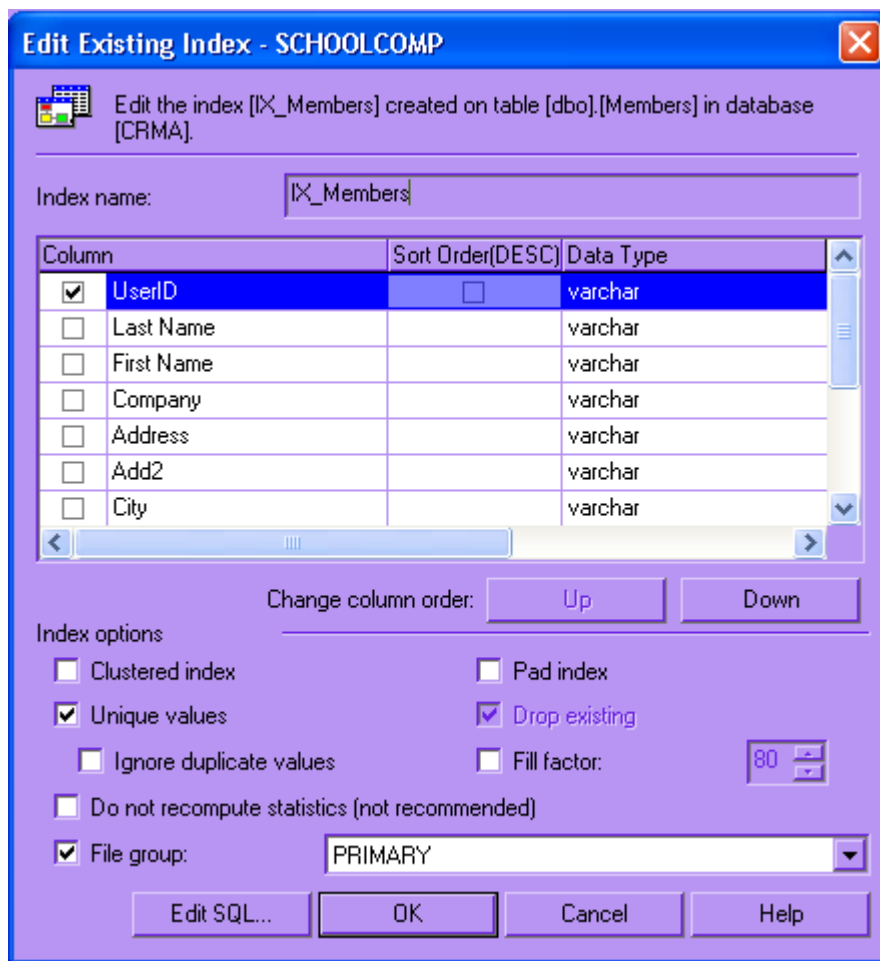


Figure 17. CRMA database userid field unique constraint

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

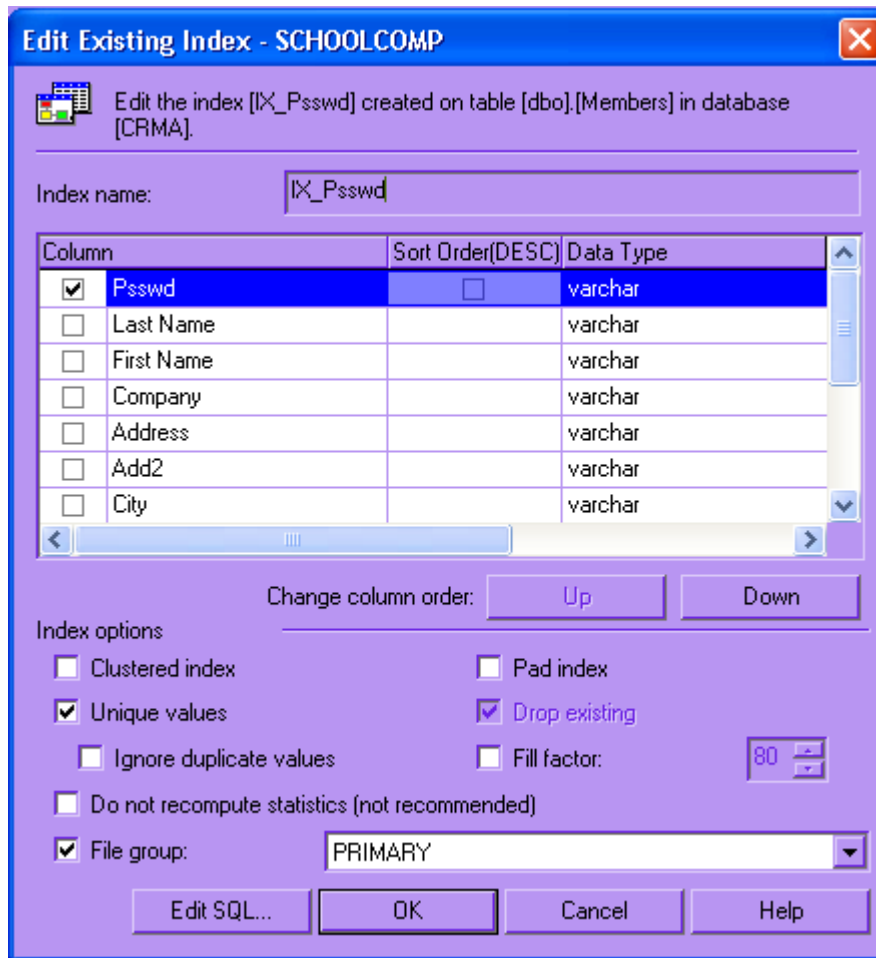


Figure 18. CRMA database password field unique constraint

5.2.3 Users

CRMA needed a userid and password to access its backend database. To provide this capability, I created a single userid and password (shown in Figure 19. on next page) with SELCT, INSERT, UPDATE, and DELETE permissions.

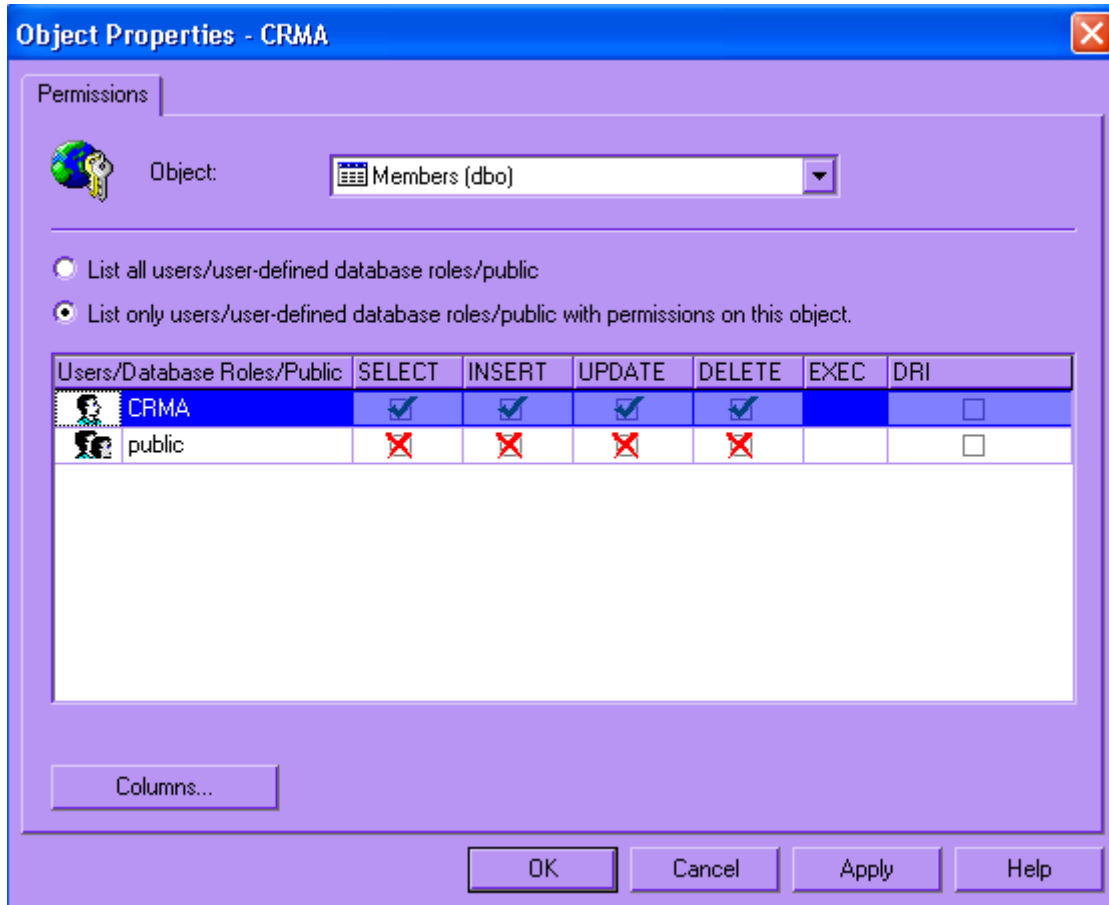


Figure 19. CRMA user and permissions

5.3 Testing

Testing an application is performed at three stages: during coding, at the prototype stage, and after the final stage. As each page of the application was created, it was tested for functionality and coding errors. This made it easy to find broken links or problem syntax and allowed for quick repairs.

For the whole application testing, I requested the assistance of several people from the conference field that have helped me during the planning and research phases.

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

These people use a variety of operating systems from Windows 98 through Windows XP and a variety of browsers and versions. This helped in evaluating the ability of these varied systems to view and navigate the application.

6. Conclusions and Recommendations

6.1 Conclusion

The creation of a conference registration application as a project was a suggestion by an acquaintance, and not having an understanding of or being intimately involved in the field made it more difficult to create the application. Having some connection to the field would have made the design and development much easier. Also, this application was developed and created as an academic version. To make it deployable or salable, it would require the purchase of licensed software as well as obtaining an account with an on-line security company like VeriSign and a payment management company like PayPal.

Using html frames to separate the links and other pages proved to require a choice between navigating in the display frame and causing changes in the links page. I had planned to have the Setup Conferences link invisible until the user logged in and had authority to do so; however, when I separated the links to their own frame, I found that I could not reference that frame in code. I could only reference the frames through hyperlink controls which do not have events.

6.2 Recommendation

During the creation of this application, I learned many lessons both in coding as well as in creating a good business model. Creating a good marketable application not

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

only requires a good understanding and the ability to code but also requires an understanding of the field for which you are creating the application.

Testing the application as a whole proved to be a slow process without having a focus group to use it. If I work with the application more to get it ready for deployment or create other applications, I will need to start testing earlier and have a set group of testers in one place so that I can get a better response from my group.

Appendix A.

Research Information

During my research for CRMA, I looked at many Web sites which employed various ways of having members/general public to register for conferences. I found that many created static pages to describe the conference and then asked the user to print a form and send it in with payment. Other sites used the currently available Windows-based applications or on-line applications, but I found that the cost of these tended to rise greatly as the number of registrants increased. Below is a list of Web sites I looked at and a summary of my findings.

<http://www.123signup.com/corp/products/eventManager.asp>. EventManager is an application available from 123signup that offers many different options for the conference planner.

http://www.acteva.com/howworks_1.cfm. Acteva is an online registration application that offers real time payment processing, integrated market tools, payment management, customized registration pages, and telemarketing support. This company charges for each service as a base fee plus per-transaction fees.

<https://www.regonline.com/Checkin.asp?EventId=8563>. Hightech Knowledge, Inc. offers an online application called RegOnline. RegOnline is another online registration application that offers several options to the user and two options for payment. One option charges a base fee as well as a per-transaction fee; the other option has no base fee, but charges a higher per-transaction fee.

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

<http://www.onlineregistrationcenter.com/features.asp>. Online Registration Center is an online registration application where the user pays license/setup, monthly, and transaction fees. The license/setup and monthly fees are quite high, but the transaction fees are about average compared to the others.

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

Appendix B.

Timeline for the creation of CRMA

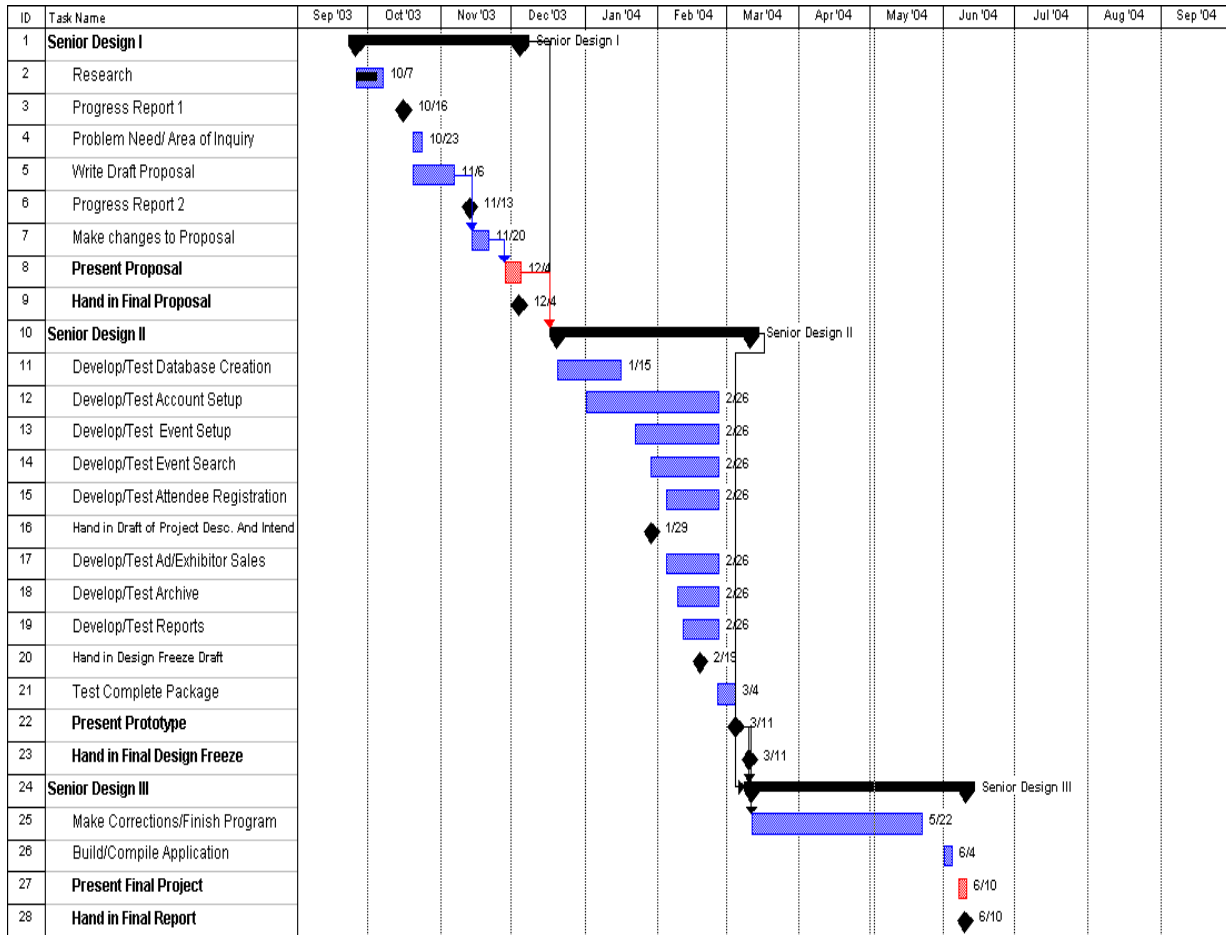


Figure 20. CRMA Timeline

Appendix C.

Sample Code for CRMA

C.1 Code snippet for login page

This page required the use of a database connection and dataset to authenticate the user logging in. This code is ASP.NET code and shows the format needed to search a filled dataset for a particular userid/password pair. To search the dataset required the creation of two DataRow objects, a DataColumn object, and an object to receive the data if a user is found.

```
Dim foundmem, Member As DataRow
Dim keys(2) As DataColumn
Dim findmem(1) As Object

'Set the values of findmem used in search.
findmem(0) = txt_UserID.Text
findmem(1) = txt_passwd.Text

'fill the dataset.
adpLogin.Fill(datLogin, "Members")

'Set the Primary Keys on the dataset.
keys(0) = datLogin.Tables("Members").Columns("UserID")
keys(1) = datLogin.Tables("Members").Columns("Psswd")
datLogin.Tables("Members").PrimaryKey = keys

'Search the dataset for member.
foundmem = datLogin.Tables("Members").Rows.Find(findmem)
```

C.2 Code snippet for create account page

This snippet of code sends an email when a user requests the ability to set up a conference during account creation.

```
Dim MyMail As MailMessage = New MailMessage
MyMail.From = "cduwell@cinci.rr.com"
MyMail.To = "chris@chessie.us"
```

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

```
MyMail.Subject = "New Member Registering"  
MyMail.Body = "A New member is registering and wants to setup  
                conferences."  
MyMail.BodyFormat = MailFormat.Text  
SmtpMail.SmtpServer = "smtp-server.cinci.rr.com"  
SmtpMail.Send(MyMail)
```

C.3 Code snippet for the search page of the conference registration set

This page gives the user a list of conferences depending on which link the user clicked (Search Conferences or Search Archive) and by the current date. It also gives the user the ability to search through the database for a particular conference using Name, Date, Price, City or State.

C.3.1 Page load

The first set of code happens when the page loads and calls the proper function depending on link pressed. Also, if the user is the Administrator, the application displays a column to be able to delete a conference.

```
If LCase(Session("UserName")) = "admin" Then  
    dgd_Conferences.Columns.Item(8).Visible = True  
Else  
    dgd_Conferences.Columns.Item(8).Visible = False  
End If  
If Not Page.IsPostBack Then  
    Me.SqlSelectCommand1.CommandText = "SELECT ConfID, UserID,  
    ConfName, Company, BDate, EDate, Location, City, State, Zi" & _  
    "pcode, Price FROM Conferences"  
    If Request.QueryString("Page") = "Conferences" Then  
        Conferences()  
    End If  
    If Request.QueryString("Page") = "Archive" Then  
        Archive()  
    End If  
End If
```

C.3.2 This set of code is a sample of the code that populates the datagrid

```
Dim dr As DataRow  
Dim dt As DataTable
```

MPCT 493: Senior Design III
Information Engineering Technology Program
Christopher A. Duwel
Final Documentation

```
'Fill the dataset
adpConference.Fill(DatConference, "Conferences")
'Assign the dataset to dt.
dt = DatConference.Tables("Conferences")

'Iterate through table removing conferences older than current date.
For Each dr In dt.Rows
    'compare dates in julian format (using converter function below).
    If Date2Julian(CDate(dr("EDate"))) >= Date2Julian(CDate(Today))
    Then
        'If good date, make conference name a hyperlink.
        dr("ConfName") = "<a href=ConfDetails.aspx?ConfID=" &
            dr("ConfID") & "&Price=" & _
            dr("Price") & "&Page=Conferences" & ">" & _
            dr("ConfName") & "</a>"

    Else
        'Else remove row from table
        dr.Delete()
    End If
Next dr

'Assign datatable as the datasource or datagrid
dgd_Conferences.DataSource = dt
'Bind datasource to datagrid
dgd_Conferences.DataBind()
```

C.3.3 Julian date converter code

```
Date2Julian = CLng(Format(Year(vDate), "0000") _
    + Format(DateDiff("d", CDate("01/01/" _
    + Format(Year(vDate), "0000")), vDate) _
    + 1, "000"))
```

References

1. 123Signup.com. "Event Manager".
<http://www.123signup.com/corp/products/eventManager.asp> . October 15, 2003.
2. Acteva. "How It Works". http://www.acteva.com/howworks_1.cfm . October 15, 2003.
3. Amazon.com. "Software". <http://www.amazon.com/exec/obidos/tg/stores/detail/-/software>. February 5, 2004.
4. Begg, Carolyn and Thomas M. Connolly. *Database Systems: A Practical Approach to Design, Implementation, and Management*. London: Pearson Education. 2002
5. Dell.com. "Select System Components".
<http://configure.us.dell.com/dellstore/config.aspx?c=us&cs=19&kc=6V468&l=en&oc=D46IS2&s=dhs>. October 31, 2003.
6. Hightech Knowledge, Inc. "Online Registration Demo!".
<https://www.regonline.com/Checkin.asp?EventId=8563> . October 15, 2003.
7. Microsoft.com. "Internet Explorer".
<http://www.microsoft.com/windows/ie/default.asp>. October 30, 2003.
8. Niederst, Jennifer. *Web Design in a Nutshell*. California: O'Reilly & Associates, Inc. 1999.
9. Online Registration Center. "Features".
<http://www.onlineregistrationcenter.com/features.asp> . October 15, 2003.
10. Peterson, Constance, Lynn Torkelson and Zac Torkelson. *Programming the Web with Visual Basic .NET*. Michigan: Apress. 2002.
11. Payne, Chris. *Teach Yourself ASP.NET in 21 Days*. Indiana: Sams Publishing. 2002
12. RegOnline. "Guided Tour". <https://www.regonline.com/guidedTour.aspx> . October 15, 2003.
13. Sawtell, Rick and Richard Waymire. *Teach Yourself Microsoft SQL Server 2000 in 21 Days*. Indiana: Sams Publishing. 2001.
14. Thamann, Joan. *Conventions Bookings.doc*. Emailed document. October 31, 2003.